

# Regional Utilities

operated by



## Florida Community Services corp of Walton County

### CROSS CONNECTION CONTROL PROGRAM

Rev. 10/15

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## **SECTION 1 INTRODUCTION**

**This manual of Cross-Connection Control has been prepared by Regional Utilities of Walton County in accordance with the State and Federal guidelines. Plumbing cross-connections which connect drinking water supplies with non-drinking water supplies are a public health concern. A cross-connection is defined by the American Water Works Association (AWWA) as:**

**“A connection or a potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under any circumstances, would allow such substances to enter the potable water system. Other substances may be gases, liquids or solids, such as chemicals, water products, steam, water from other sources (potable or nonpotable), or any matter that may change the color or add odor to the water. Bypass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or any other temporary or permanent connecting arrangement through which backflow occur are considered to be cross-connections.”**

### **1.01                   PURPOSE**

**The purpose of a cross-connection control program is to prevent waterborne diseases and contaminants from entering the Regional Utilities potable water distribution system and thus the water we drink. More exactly, the program is intended to prevent delivered water (water that has passed beyond the public water system and into the private distribution systems of consumers) from re-entering the public distribution system and being subsequently delivered to other consumers. The program aims to protect Regional Utilities and its consumers from those water-using establishments, which could possibly reduce the quality and safety of the municipal water supply through backflow and/or cross-connection.**

### **1.02                   LEGAL AUTHORITY**

#### **F.A.C. 62-555.360**

**Florida Administrative Code 62-555.360 requires the water purveyor “shall establish and implement a routine cross-connection control program to detect and control cross-connections and prevent backflow of contaminants into the water system.” Such program shall be developed using accepted practices of the American Water Works Association guidelines as set forth in AWWA (M14), “Recommended Practice for Backflow Prevention”**

Upon discovery of a prohibited cross-connection, or inappropriately protected cross-connection, public water systems shall either ensure the cross-connection is eliminated, shall ensure appropriate backflow protection is installed to prevent backflow into the public water system, or shall discontinue service. No cross-connections to potable water systems without appropriate backflow prevention assemblies shall be allowed. The permittee shall establish and shall obtain Florida Department of Environmental Protection approval for a cross-connection control and inspection program.

### **1.03 CAUSES OF BACKFLOW**

Where cross-connections exist, protection against backflow is needed to reduce the possibility of contamination. The causes of backflow cannot be eliminated completely since backflow is often initiated by accidents or unexpected circumstance. However, some causes of backflow can be partially controlled by good design and informed maintenance. Listed below are the major causes of backflow as outlined under the two types of backflow- Backsiphonage, and Backpressure.

#### **A. Backsiphonage**

Backsiphonage is caused by reduced or negative pressure being created in the supply piping. A major cause of backsiphonage is the interruption of the supply pressure. This will allow negative pressures to be created by water trying to flow to a lower point in the system. Another cause is undersized piping. If water is withdrawn from a pipe at a very high velocity, the pressure in the pipe is reduced and the pressure differential created can cause water to flow into the pipe from a contaminated source. The potable water supply can thus become contaminated due to backsiphonage of contaminants into the potable water supply creating the potential for serious health problems.

The principal causes of backsiphonage are:

- 1. A line repair or break which occurs at a lower elevation than the service point;**
- 2. Undersized piping;**
- 3. Lowered pressure in a water main due to a high water withdrawal rate such as fire-fighting, water main flushing, or water main breaks; and**
- 4. Reduced supply main pressure on the suction side of a booster pump.**

## **B. Backpressure**

**Backpressure may cause backflow to occur where a potable water system is connected to a non-potable system of piping, and the pressure in the non-potable system exceeds that in the potable system. High pressures may be created by means of pumps, boilers, etc. There is a high risk of non-potable water being forced into the potable water system whenever these types of cross-connections are not properly protected.**

**The principal causes of backpressure are:**

- 1. Booster pump systems designed without backflow prevention assemblies;**
- 2. Potable water connections to boilers and other pressure systems without backflow prevention assemblies;**
- 3. Connections with a non-potable system which may, at times, have a higher pressure;**
- 4. Non-potable water stored in tanks or plumbing systems, which, by virtue of their elevation, would create head sufficient to cause backflow if pressure were lowered in the public system.**

## **SECTION 2 OBJECTIVES**

**The objectives of Regional Utilities Cross-Connection Control Program are as follows:**

- 1. To protect the public potable water supply from the possibility of contamination by containing within its consumer's private water system, contaminants or pollutants which could, under any conditions, backflow through uncontrolled cross-connections into the public water system.**
- 2. To eliminate or control existing cross-connections, actual or potential, between the consumer's on-premise potable water system(s) and non-potable water systems(s) plumbing fixtures and industrial piping systems.'**
- 3. To provide a continuing inspection program of cross-connection control, which will systematically and effectively control all actual or potential cross-connections, which exist presently or may exist in the future.**
- 4. To maintain an on-going public information program to educate the community on cross-connections control and to encourage citizen cooperation and coordination toward a successful cross-connection control program.**

## **SECTION 3 RESPONSIBILITY**

### **3.01 WATER PURVEYOR**

**Under the Safe Drinking Water Act of 1974 and the Rules of the Florida Department of Environmental Protection, relating to cross-connection, the water purveyor has the primary responsibility of maintaining a cross-connection control program to prevent water from unapproved sources, or any other substances, from entering the public potable water system.**

**Upon discovery of a prohibited cross-connection, or inappropriately protected cross-connection, Regional Utilities either shall ensure the cross-connection is eliminated, shall ensure appropriate backflow protection is installed to prevent backflow into the public water system, or shall discontinue service.**

### **3.02 PLUMBING OFFICIAL**

**The plumbing inspection arm of Regional Utilities and the Walton County Building Official has the authority to review site and building plans and inspect plumbing as it is installed. It also has the authority to prevent the design or construction of cross-connections in structures within Regional Utilities' jurisdiction.**

**Where the review of site and building plans suggest or detect the potential for cross-connections being made an integral part of the plumbing system, Regional Utilities has the authority under the Standard Plumbing Code to require that such cross-connection practices be either eliminated or provided with approved backflow prevention equipment.**

**Regional Utilities and Walton County's authority begins at the point of service (the downstream side of the meter) and carries throughout the entire length of the consumer's water system for all new construction. During the review of site and building plans, clarification should be made about the intended use of water at any point where it is suspect that a cross-connection might be made or where one is actually called for by the plans. When cross-connection potential is discovered, it is mandatory that a suitable, approved backflow prevention assembly be required by the plans and the property installed. Review of site and building plans shall include input from Regional Utilities to coordinate the proper location and application of approved backflow prevention assemblies.**

### **3.03 PUBLIC HEALTH OFFICER**

**The Public Health Officer is authorized to promulgate and enforce laws, rules, regulations and policies to be followed in carrying out an effective cross-connection control program. In the State of Florida, the Public Health Officer works for the Department of Environmental Protection.**

**The Public Health Officer has the primary responsibility of insuring that the water purveyor operates the public potable water system free of actual or potential sanitary hazards, including unprotected cross-connections. This officer has the further responsibility of insuring that the water purveyor provides an approved water supply at the point of delivery to the consumer's water system.**

**The Public Health Officer has the primary responsibility of insuring that the consumer's potable water system is provided with an approved water supply and that the consumer's potable water system(s) is maintained free of sanitary hazards, including unprotected cross connections.**

### **3.04 CONSUMER**

**The consumer's responsibility starts at the point of delivery from the public potable water system and includes all of the consumer's water systems. The consumer, at his own expense, is required to install, operate, test and maintain approved backflow prevention assemblies as directed by Walton County Building Officials and Regional Utilities. The consumer must maintain accurate records of tests and repairs made to backflow prevention assemblies and provide Regional Utilities with copies of such records. The records are required to be on forms approved or provided by Regional Utilities. In the event of accidental pollution or contamination of the public or consumer's potable water system due to backflow on or from the consumer's premises, the consumer shall promptly take steps to confine further spread of pollution or contamination with the consumer's premises, and is required to immediately notify Regional Utilities of the hazardous condition.**

### **3.05 BACKFLOW PREVENTION ASSEMBLY INSTALLERS**

**The installer's responsibility is to assure proper installation of backflow prevention assemblies in accordance with the manufacturer's installation instructions and those furnished by Regional Utilities.**

**Testing at the time of installation for all RPBA's, DCVA's, DCDA's, and PVB's shall be performed by a certified backflow prevention device technician (reference page 12 for definition and explanation of Backflow Prevention Assembly Tester-Certified). Test results are to be provided immediately to Regional Utilities.**

## **SECTION 4 POLICY**

**Regional Utilities has the continuing authority to inspect all industrial, commercial, and residential users of potable water, where pollution, health, or system hazards may exist or be created; where materials dangerous to health are handled in tanks, piping systems, or other vessels on the premises, or where the water system is unstable and cross-connections may be installed. The following policies to cross connections will apply:**

- 1. Should the connection be between two (2) approved public potable water supplies, common gate and check valves may be used provided this has the approval of both water supplies and the Florida Department of Environmental Protection.**
- 2. Should the connection be between an approved public potable water supply and a service or other water supply which has, or may have, any material in the water dangerous to health that is, or may be, handled under pressure, subject to negative pressures, protection shall be by an approved air-gap separation (AG). The air-gap shall be located as close as practical to the service cock or other connection to the approved supply. All piping between such connection and air-gap shall be entirely visible. If these conditions cannot reasonably be met, the public potable water supply shall be protected alternatively with an approved reduced pressure backflow assembly (RPBA), provided the alternative is acceptable to Regional Utilities and the Florida Department of Environmental Protection.**

## **SECTION 5 INSPECTIONS**

### **5.01            FREQUENCY**

**Due to changes in models or components or equipment, methods of manufacturing and additions to plants, buildings, etc., water use requirements undergo continual change. As a result, new cross-connections may be installed and existing protection may be by-passed, removed or made other wise ineffective; therefore, an annual, or more frequent detailed**

**inspection by Regional Utilities of all water usage is required. In addition, all new building construction shall also be plan-checked and inspected during installation by the Walton County Building Department and Regional Utilities Cross-Connection Control Supervisor, and/or Utilities Inspector to insure conformance with cross-connection control policy.**

**5.02 NEW CONSTRUCTION AND REQUIRED BACKFLOW PROTECTION AT POINT OF SERVICE**

**All new construction plans and specifications for industrial, commercial facilities, or multi-family residential shall be submitted to Regional Utilities of Walton County for evaluation to determine the degree of possible cross-connection hazards. Evaluation shall include input from Regional Utilities to coordinate the proper location and application of approved backflow prevention assemblies as necessary. Backflow prevention and cross connection control shall be accomplished by a combination of plans review and field inspections.**

**If adequate plans and specifications are not available and no realistic evaluation of proposed water uses can be made, the consumer shall be advised that the installation of backflow prevention assemblies or other controls shall be necessary.**

**In conjunction with its inspection and testing of all new plumbing, the Walton County Building Official and Regional Utilities Cross-Connection Control Program Supervisor, and/or Utilities Inspector will inspect or cause to have inspected the complete backflow preventer installation. Field inspections during the construction or immediately after will also serve to identify hazards that were not apparent during plans review or were introduced during construction. The Plumbing Official is responsible for field inspection to determine compliance with plumbing regulations. Regional Utilities will assist the Plumbing Official as necessary to insure compliance with field-testing of the backflow preventer.**

**After final approval of the installation and satisfactory test results, in accordance with plumbing codes and cross-connection rules and regulations, a report will be completed and filed by the Cross-Connection Control Supervisor with the concurrence of the Plumbing**

**Official. This report will include size, model, location, and all other pertinent details of the installation including satisfactory test results attested to by a certified tester.**

**All residential and non-residential construction of any building to be served by the Regional Utilities water system shall be plan-checked and inspected by the Plumbing Official and Regional Utilities Cross Connection Control Program Supervisor, and/or Utilities Inspector for compliance with cross-connection control regulations prior to connection to the potable water main.**

All buildings shall have an approved backflow prevention assembly/device at the water service connection as listed below:

- |    |                                       |   |                               |
|----|---------------------------------------|---|-------------------------------|
| 1. | Single Family Residential - 5/8" & 1" | - | DCV                           |
| 2. | Multi Family Residential - 5/8" & 1"  | - | DCV                           |
| 3. | 1 1/2" & Larger Meters                | - | RPBA                          |
| 4. | Buildings over 4 Stories              | - | RPBA                          |
| 5. | Non Residential Facilities            | - | RPBA                          |
| 6. | Fire Sprinkler Systems with chemicals | - | RPBA                          |
| 7. | Fire Sprinkler Systems – no chemicals | - | RPDA or DCDA                  |
| 8. | All Other                             | - | Regional Utilities Discretion |

**Notes:**

**DCV – Dual Check Valve as supplied by Regional Utilities**

Not testable in-line. Recommended replacement every 10 years

**RPBA - Reduced Pressure Backflow Assembly**

Required testing: upon installation and annually thereafter. Additional testing may be required in the event the assembly is moved or obvious repairs are needed.

**DCDA – Double Check Detector Assembly**

Required testing: upon installation and annually thereafter. Additional testing may be required in the event the assembly is moved or obvious repairs are needed.

**RPDA – Reduced Pressure Detector Assemble**

Required testing: upon installation and annually thereafter. Additional testing may be required in the event the assembly is moved or obvious repairs are needed.

Agricultural premises	AG or RPBA
Aircraft or missile plant, excluding any aircraft or missile facility used only for management, mockup, engineering, or assembly	AG or RPBA
Automotive manufacturing plant	AG or RPBA
Beverage processing or bottling plant	AG or RPBA
Brewery or winery	AG or RPBA
Car Wash	AG or RPBA
Chemical manufacturing, storage, processing, compounding, or treatment plant; including any industrial facility where a chemical is used in processing a product or any pest control facility	AG or RPBA
Commercial Laundries or dry cleaners	AG or RPBA
Dairy, creamery, ice cream plant, cold storage plant, or ice manufacturing plant	AG or RPBA
Dyeing plant	AG or RPBA
Film manufacturing plant or film processing laboratory, excluding any small darkroom facility in an x-ray laboratory, drug store, or small shop	AG or RPBA
Fire protection	See Section 10
Food or beverage processing plant	AG or RPBA
Hospital; sanitarium, nursing, convalescent, or maternity home; clinic; medical, dental, or veterinary office or building; morgue, autopsy facility; or mortuary	RPBA
Industrial facility with a piped and pressurized process water system	AG or RPBA
Irrigation systems	AG or RPBA
Irrigation systems (with chemical additives)	AG
Laboratory—bacteriological, biological, or chemical—including any high school, trade school, college, or university building containing such a laboratory	AG or RPBA
Machine tool plants	AG or RPBA
Marina, shipyard, or any premises where there is a hydrant used to provide water to boats or ships	AG or RPBA
Metal manufacturing, cleaning, processing, or fabricating plant	AG or RPBA
Motion picture studio, including any premises where water is used for a scene tank or for special effects	AG or RPBA
Multi family residential under four stories	DCV or RPBA
Multi story residential buildings with four or more stories above ground	RPBA
Oil—animal, mineral, or vegetable—or gas production, development, processing, blending, storage, refinery, transmission, or tank maintenance property, including any premises where an oil well is being drilled, developed, or operated, where a gas production or bottling plant is operated, where oil or gas tanks are repaired or tested,	AG or RPBA

where a dehydration or refinery facility is operated, where water is used for slugging oil or gas through transmission lines, or where water is used for testing or purging oil or gas tanks or pipelines	
Packing houses	AG or RPBA
Paper or paper product plant (wet process)	AG or RPBA
Pharmaceutical or cosmetic plants	AG or RPBA
Piers, docks, or waterfront facilities	AG or RPBA
Plating—chemical, electrochemical, or mechanical—plant, including any plant with a chromium, cadmium, or other plating operation or a galvanizing, anodizing, stripping, oxidizing, etching, passivating, or pickling operation	AG or RPBA
Poultry farm	AG or RPBA
Power plant	AG or RPBA
Premises having boiler, cooling systems, or hot water systems where chemical water conditioners are used	AG or RPBA
Premises having storage tanks, reservoirs, ponds, etc.	AG or RPBA
Premises having water recirculating systems and pumps	AG or RPBA
62-555.320(3), F.A.C., is added to the consumer’s potable water system	AG or RPBA
Premises where inspection is restricted	RPBA
Premises where the consumer’s potable water system supplies water to a cooling system, a space heating hot-water or steam boiler, a single-wall heat exchanger, or a double-wall heat exchanger with no leak detection capability	AG, RPBA
Premises with an auxiliary water system. a. Industrial premises with an auxiliary water system b. Nonindustrial premises with an auxiliary water system	a. AG or RPBA b. AG or RPBA
Premises with multiple interconnected water service connections	AG, RPBA
Properties also served by reclaimed water systems	AG or RPBA
Radioactive material processing or handling facility or nuclear reactor plant	AG or RPBA
Restaurants	RPBA

Rubber—natural or synthetic—or rubber goods manufacturing plant, excluding any small molding or tire retreading plant	AG or RPBA
Sand and Gravel plants	AG or RPBA
Single family residential	DCV or RPBA
Steam plants	AG or RPBA
Swimming Pools	AG or RPBA
Travel trailer park	RPBA
Wastewater or storm water treatment plant or pumping station or any premises with a wastewater pump	RPBA

Notes:

- RPBA = Reduced pressure back flow assembly (with all test cocks)
- DCVA = Double check valve backflow assembly (with all test cocks)
- DCV = Dual check valves as supplied by Regional Utilities on all residential meters of one inch in size and under.
- DCDA = Double check detector assembly (with all test cocks)
- AG = Air gap

### **5.03 EMERGENCY PROCEDURES**

**If a consumer discovers a hazardous situation where contaminants are actually in the process or suspected of entering the distribution system of the public potable water supply, the consumer is authorized to take such immediate steps as necessary to correct the questionable existing hazardous condition. He is further responsible for immediately notifying Regional Utilities of the need for flushing the contaminants out of the system.**

**Regional Utilities is authorized to take immediate steps deemed necessary to correct a hazardous condition; which shall include the right to immediately discontinue potable water service to premises where a hazardous condition may be occurring. Such emergency steps, including discontinuance of potable water service, may be taken without advance notice to the consumer. The consumer shall be notified as soon as possible thereafter if potable water service has been discontinued; and the matter brought to the attention of Regional Utilities and its board members.**

### **SECTION 6 DEFINITIONS**

**AIR-GAP SEPERATION – The unobstructed vertical distance through free atmosphere between the lowest effective opening from any pipe or faucet conveying water or waste to a tank, plumbing fixture, receptor, or other assembly and the flood level rim of the receptacle.**

**These vertical, physical separations must be at least twice the effective opening of the water supply outlet, never less than 1” above the receiving vessel flood rim.**

**APPROVED – a) The term approved, as herein used in reference to a water supply, shall mean a potable water supply that has been approved by the Florida Department of Environmental Protection. b) The term approved, as herein used in reference to air-gap separation, a double check valve assembly, or a reduced pressure backflow assembly or other backflow prevention assembly or method, shall mean as approved by Regional Utilities.**

**BACKFLOW – The undesirable reversal of the flow of a liquid, gas, or other substance into or towards the distribution piping of a potable supply of water from any source or sources.**

**BACKFLOW PREVENTION ASSEMBLY – An assembly, device or method that prohibits the backflow of a liquid, gas, or other substance into the potable water system.**

**BACKFLOW PREVENTION ASSEMBLY APPROVED – An assembly that has been investigated and approved by Regional Utilities and has been shown to meet the design and**

performance standards of the American Society of Sanitary Engineers (ASSE) and/or the American Water Works Association (AWWA). The approval of backflow prevention assemblies by Regional Utilities is based on a favored report by an approved testing laboratory, recommending such an approval.

**BACKFLOW PREVENTION ASSEMBLY TESTER – CERTIFIED** - A person who has proven his/ her competency to the satisfaction of Regional Utilities. Each person who is certified to make competent tests or to repair, overhaul and make reports on backflow prevention assemblies shall be conversant with applicable laws, rules and regulations and shall have attended and successfully completed the TREEO (Training, Research, and Education for Environmental Occupations) Certification Program for Backflow Prevention Assembly Testers, or another USCFHR or DEP approved program.

**BACKPRESSURE** – A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, air/steam pressure, or any other means, which may cause backflow.

**BACKSIPHONAGE** – The reversal of the normal direction of flow in the pipeline due to a negative pressure (vacuum) being created in the supply line with the backflow source subject to atmospheric pressure.

**CONSUMER** – Any person, firm or corporation using or receiving water from the potable water system.

**CONTAMINATION** – An impairment of the quality of the potable water supply by sewage, industrial fluids or any other foreign substance to a degree, which creates an actual hazard to the public health through the potential spread of disease or toxic materials.

**CROSS CONNECTION** – Any unprotected connection between any part of a water system used or intended to supply water for drinking purposes and any source or system containing water or substances that is contaminated or cannot be approved as safe, wholesome and potable for human consumption. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary or permanent devices through which or because of which “backflow” can or may occur are considered to be cross connections.

**DOUBLE CHECK VALVE ASSEMBLY** – A complete assembly consisting of two internally loaded, independently operating check valves, located between two tightly closing resilient-seated shutoff valves with four properly placed resilient seated test cocks. This assembly shall only be used to protect against non-health hazards. (i.e., a pollutant)

**DOUBLE CHECK DETECTOR ASSEMBLY** – Same as above but including a flow detection meter assembly in parallel with its own check valves and test ports.

**FIRE SPRINKLER SYSTEM** – A sprinkler system, for fire protection purposes, is an integrated system of underground and overhead piping designed in accordance with fire

protection and engineering standards. The installation may include one or more water supplies.

**FLOOR LEVEL RIM** – The edge of the receptacle from which water overflows is the floor level rim.

**HAZARD-DEGREE OF** – The term degree of hazard is a qualification of what potential and actual harm may result from cross connections within a water-using facility. Establishing the degree of hazard is directly related to the type and toxicity of contaminants that could feasibly enter the public water supply water system and can be classified as either a “pollutional” (non-health) or a “contamination” (health) hazard.

**HAZARD-HEALTH** – The term health hazard shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer’s potable water system to such a degree or intensity that there would be a danger to health.

**HAZARD-PLUMBING** – The term plumbing hazard shall mean a plumbing type cross connection in a consumer’s potable water system that has not been properly protected by a vacuum breaker, air-gap separation or other device. Unprotected plumbing type cross connections are considered to be a health hazard. They include, but are not limited to, cross connections to toilets, sinks, laboratories, wash trays, domestic washing machines, and lawn sprinkler systems. Plumbing type cross connections can be located in many types of structures, including homes, apartment houses, hotels and commercial and industrial establishments. Such a connection, if permitted to exist, must be properly protected by an appropriate type of cross connection control assembly.

**HAZARD-POLLUTION** – The term pollution hazard shall mean an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system, but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance, or be aesthetically objectionable, or could cause minor damage to the system or its appurtenances.

**HAZARD-SYSTEM** – The term system hazard shall mean an actual or potential threat of severe danger to the physical properties of the public or the consumer’s potable water system, or of a pollution or contamination, which would have a protracted effect on the quality of the potable water in the system.

**HEALTH AGENCY** – The term health agency shall mean the Florida State Department of Health and Rehabilitative Services (DHRS).

**HOSPITAL** – The term hospital shall mean an institution, place, building, or agency which maintains and operates organized facilities of one or more persons, for the diagnosis, care and treatment of human or animal illness, including convalescence care, during and after pregnancy, or which maintains and operates organized facilities for any such purpose, and

to which persons may be admitted for an overnight stay or longer. “Hospital” includes sanitarium, nursing home, maternity home and veterinarian facilities.

**INDUSTRIAL FLUID** – The term industrial fluid shall mean any fluid or solution, which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration, such as would constitute a health, system, pollution or plumbing hazard if introduced into an approved potable water supply. This may include, but not be limited to; polluted or contaminated used waters; all types of process waters and “used waters” originating from the public potable water system which may deteriorate in sanitary quality; chemicals in fluid form; plating acids and alkalies; circulated cooling water connected to a open cooling tower and/or cooling waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or system, etc.; oils, gases, glycerin, paraffin, caustic and acid solutions and other liquid and gaseous fluids used industrial or other processes or for fire fighting purposes.

**INDUSTRIAL PIPING SYSTEM-CONSUMER’S** – The term consumer’s industrial piping system shall mean any system used by the consumer for transmission of or to store any fluid, solid or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances to produce, convey or store substances, which are or may be polluted or contaminated.

**INLET** – The open end of the water supply pipe through which the water is discharged into the plumbing fixture shall be the inlet.

**LABORATORY-APPROVED TESTING** – Reference to an approved testing laboratory shall mean the Foundation for Cross Connections Control Research of the University of Southern California, or any other laboratory having the equivalent facilities for both the laboratory and field evaluation of the devices approved by the American Water Works Association or American Society of Sanitary Engineers.

**PLUMBING OFFICIAL** – The term plumbing official shall mean any individual, board, department, or agency established and authorized by State, County, City or other political subdivision created by law to administer and enforce the provisions of the Standard Plumbing Code as adopted or amended. The Plumbing Official is the Walton County Building Inspector. However, The Regional Utilities Cross Connection Control Program Supervisor also has authority over cross connection controls.

**PLUMBING SYSTEM** – The term plumbing system includes the potable water supply and distribution pipes; plumbing fixtures and traps; soil, waste, and pipes; building drains and building sewers, including their respective connections, devices and appurtenances within the property line of the premises; and water treating or water using equipment.

**POINT OF DELIVERY** – See Service Connection.

**POLLUTION** – Pollution shall mean an impairment of the quality of the water to a degree which does not create an actual hazard to the public health, but which does adversely and unreasonably affect it for domestic use.

**REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)** – The term approved reduced pressure backflow assembly (RPBA) shall mean a device containing within its structure a minimum of two independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure a predetermined amount, so that during normal flow and at cessation of normal flow, the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing ball-type or resilient seated shutoff valves located at each end of the device and each device shall be fitted with four properly located test cocks.

**SERVICE CONNECTION** – The term service connection shall mean the terminal end of the public potable water system, i.e., where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the consumer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There shall be no unprotected takeoffs from the service line ahead of any backflow prevention assembly located at the point of delivery to the consumer's water system.

**VACUUM BREAKER-NONPRESSURE (ATMOSPHERIC) TYPE** – A vacuum breaker-nonpressure type is a vacuum breaker, which is designed for use where it will not be subject to static line pressure.

**VACUUM BREAKER-PRESSURE TYPE** – A vacuum breaker-pressure type is a vacuum breaker designed to operate under conditions of static line pressure. The unit shall include tightly closing ball type or resilient seated shutoff valves located at each end of the assembly.

**WATER-POTABLE** – The term potable water shall mean water from any source which has been investigated by the Florida Department of Environmental Protection and which has been approved for human consumption by the health authority having jurisdiction. Potable water is water of excellent quality intended for drinking, cooking, and cleansing uses. This grade of water would conform to the water quality requirements of State and Federal regulatory agencies.

**WATER PURVEYOR** – The term water purveyor shall mean the utility owner or operator of the public potable water system supplying an approved water supply to the public. The utility shall be one that is operating under a valid permit from the Department of Environmental Protection. As used herein the term water purveyor and Utility Department may be used synonymously.

**WATER SUPPLY-APPROVED** – The term approved water supply shall mean the potable water system or any public potable water supply, which has been investigated and approved by the Florida Department of Environmental Protection. The system must be operating under a valid health permit. In determining what constitutes an approved water supply, the Department of Environmental Protection has reserved final judgment as to its safety and potability.

**WATER SUPPLY-AUXILIARY** - The term auxiliary water supply shall mean any water supply on or available to the premises other than the purveyor’s approved public potable water supply. These auxiliary waters may include water from another purveyor’s public potable water supply or any natural source such as a well, spring, river, stream, etc., or “used water” or “industrial fluids”. They may be polluted or contaminated or objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

**WATER SUPPLY – UNAPPROVED** – The term unapproved water supply shall mean a water supply, which has not been approved for human consumption by the health agency having jurisdiction.

**WATER SYSTEM-CONSUMER’S** – The term consumer’s water system shall include any water system located on the consumer’s premises, whether supplied by the public potable water system or an auxiliary supply. The system or systems may be either a potable water system or an industrial piping system.

**WATER SYSTEM-CONSUMER’S POTABLE** - The term consumer’s potable water system shall mean that portion of the privately owned potable water system lying between the point of delivery and point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, store, or use potable water.

**WATER SYSTEM-PUBLIC POTABLE** - The term public potable water system shall mean any publicly or privately owned water system operated as a public utility, under a recent health permit, to supply water for domestic purposes. This system will include all sources, facilities, and appurtenances between the source and the point of delivery such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, treat or store potable water for public consumption or use.

**WATER-RECLAIMED** – The term reclaimed water means water which, as a result of treatment of domestic wastewater, is suitable for a beneficial use or a controlled use that would not otherwise occur. Reclaimed water is also known as reuse water.

**WATER SUPERVISOR** – The term water supervisor shall mean the consumer or a person on the premises appointed by the consumer charged with the responsibility of maintaining the consumer’s water system(s) on the property free from cross connections and other sanitary defects, as required by regulations and laws. A certified back-flow prevention assembly tester may not act as a water supervisor unless he is a full time employee of the

consumer having the day-to-day responsibility for the installation and use of pipelines and equipment of the premises and for avoidance of cross connections.

**WATER-USED** – The term used water shall mean water supplied by a water purveyor from a public potable water system to a consumer’s water system after it has passed through the point of delivery and is no longer under the control of the water purveyor.

**SECTION 7  
APPLICABLE STANDARDS AND DESCRIPTIONS FOR BACKFLOW PREVENTION  
ASSEMBLIES**

**7.01 APPLICABLE STANDARDS**

The following specifications or requirements of approving agencies are recognized by Regional Utilities. All backflow prevention assemblies and conditions of cross-connection control shall meet or exceed the standards set forth by one or more of the following agencies. Regional Utilities reserves the right to state which standards apply if and when conflicts between standards arise.

- AWWA - American Water Works Association - #C506 and Manual M14.**
- ASSE - American Society of Sanitary Engineers - #1001, #1011,#1012, #1013, #1015,#1020,#1024,#1032, and #1035.**
- FCCHR - University of Southern California, Foundation for Cross Connection  
Of USC Control and Hydraulic Research (Manual of Cross Connection Control, Eighth Edition, June 1988).**
- SBCC - Southern Building Code Congress (Standard Plumbing Code).**

The Regional Utilities Cross Connection Control Supervisor will maintain a list of approved device manufactures for use within Regional Utilities’ water service area.

**7.02 ABBREVIATIONS FOR PROTECTIVE DEVICES**

- AG - Approved Air-Gap**
- AVB - Approved Atmospheric Vacuum Breaker**
- DCVA - Approved Double Check Valve Assembly**
- HBVB - Approved Hose Bibb Vacuum Breaker**
- PVB - Approved Pressure Vacuum Breaker**
- RPBA - Approved Reduced Pressure Backflow Assembly**
- DCV - Approved Dual Check Valves**
- DCDA - Approved Double Check Detector Assembly**
- RPDA - Approved Reduced Pressure Detector Assembly**

**7.03 TYPES OF BACKFLOW PREVENTION ASSEMBLIES AND HAZARD CONDITION DESCRIPTIONS**

The following definitions apply to hazard conditions existing at a site where backflow prevention devices may be required.

<b><u>Degree of Hazard</u></b>	<b><u>Definition</u></b>
<b>Low</b>	<b>A condition where a polluting substance may come in contact with potable water aesthetically affecting the taste, odor or appearance, but not hazardous to health (non-toxic) (e.g., pollution hazard).</b>
<b>Moderate To High</b>	<b>A condition where a polluting substance may come in contact with potable water creating a health hazard, causing sickness or death (toxic) (e.g., system hazard, plumbing hazard, health hazard).</b>

Table 7.1 and table 7.2 lists the types and applications of backflow prevention devices, a brief description of each device, typical installation conditions, and applicable standards.

<b><u>TYPE &amp; APPLICATION</u></b>	<b><u>TYPICAL DESCRIPTION</u></b>	<b><u>APPLICABLE INSTALLATION</u></b>	<b><u>STANDARDS</u></b>
<b>DOUBLE CHECK VALVE ASSEMBLY</b> For <u>low hazard</u> connections	Two independent check valves. Supplied with ball-type or resilient-seated shut-off valves and ball type test cocks.	All cross connections subject to backpressure where there is a low potential health hazard or nuisance. continuous pressure.	A.S.S.E. 1015 A.W.W.A. C506 FCCHR or USC
<b>DOUBLE CHECK DETECTOR ASSEMBLY</b> For <u>low hazard</u> applications.	Double check valve assembly with a water meter and double check in by-pass line. Must be Supplied with shut-off valves and test locks.	Fire protection system supply main. Detects leaks and unauthorized use of water.	A.S.S.E. 1015 A.W.W.A. C506 FCCCHR of USC
<b>DUAL CHECK VALVE BACKFLOW PREVENTER</b> For <u>low hazard</u> Applications.	Two independent check valves. Checks are removable for testing.	Cross connections where there is a low potential health hazard and moderate Flow requirements.	A.S.S.E. 1024
<b>BACKFLOW PREVENTER WITH INTERMEDIATE ATMOSPHERIC VENT</b> For <u>moderate hazard</u> cross connections in small pipe sizes.	Two independent check valves with intermediate vacuum breaker and relief valve.	Cross connections subject to backpressure or back-siphonage where there is a moderate health hazard. Continuous pressure.	A.S.S.E. 1012
<b>LABORATORY FAUCET AND DOUBLE CHECK VALVE WITH INTERMEDIATE VACUUM BREAKER</b> In small pipe sizes for <u>Moderate to low hazard</u>	Two independent check valves with intermediate vacuum breaker and relief vent.	Cross connections subject to backpressure or back-siphonage where there is a moderate to low health hazard.	A.S.S.E. 1035

<b><u>TYPE &amp; APPLICATION</u></b>	<b><u>DESCRIPTON</u></b>	<b><u>TYPICAL INSTALLATION</u></b>	<b><u>APPLICABLE STANDARDS</u></b>
<b>REDUCED PRESSURE BACKFLOW ASSEMBLY</b>  For high hazard cross connections.	Two independent check valves with intermediate relief valve. Supplied with ball-type shut-off Valves and ball type test cocks.	All cross connections subject to backpressure where there is a high potential health hazard from contamination continuous pressure.	A.S.S.E. 1013
<b>ATMOSPHERIC VACUUM BREAKERS</b>  For moderate to high hazard cross connections.	Single float and disc with large atmospheric port.	Cross connections not subject to backpressure Or continuous pressure install at least 6” above Rim. Protection against backsiphonage only.	A.S.S.E. 1001 FCCCHR of USC
<b>PRESSURE TYPE VACUUM BREAKERS</b>  For moderate to high hazard cross connections.	Spring loaded single float and disc with independent 1 <sup>st</sup> check. Supplied with ball-type Shut-off valves and ball Type test cocks.	This valve is designed for installation in a Continuous pressure potable water supply system 12’ above the overflow level of the System being supplied. Protection against back- Siphonage only.	A.S.S.E. 1020 FCCCHR of USC
<b>HOSE CONNECTION VACUUM BREAKERS</b>  For residential and in- Dustrial hose supply outlets	Single check with atmosphere vacuum breaker vent.	Install directly on hose bibs, service sinks and wall hydrants. Not for continuous pressure.	A.S.S.E. 1011
<b>AIR GAP</b>  For moderate to high hazard cross connection	Vertical separation of 2D of the supply pipe above vessel overflow rim.	All cross connections subject to backpressure or back-sipho- nage where there is a high Potential health hazard from contamination.	ANSI A112.1.2 Vertical separation must be – 1”

## 7.04

### **TYPICAL PLUMBING ARRANGEMENTS REQUIRING BACKFLOW PREVENTION DEVICES IN ADDITION TO POINT OF SERVICE BACKFLOW PREVENTER (Note references to SBCC, Standard Plumbing Code).**

*NOTE: This Section for reference only to plumbing. Regional Utilities shall not be responsible to inspect or enforce this section.*

1. **Fixture Inlets or Valved Outlets with hose attachments, which may constitute a cross connection, shall be protected by the proper approved vacuum breaker (PVB, HBVB, etc.) installed at least six (6) inches above the highest point of usage and located on the discharge side of the last valve. Fixtures with integral vacuum breakers manufactured as a unit may be installed in accordance with their approved requirements. (SPC Sec. 1204.3.4.)**
2. **Industrial Fluid or Processed Water – Potable water pipelines connected to industrial piping systems or to equipment containing industrial fluid, sewage, used or processed water, or any other potentially contaminated liquid shall be protected by installing an RPBA in the interconnecting lines or by an AG separation.**
3. **Air Conditioning Cooling Tower – Potable water inlet shall have an AG separation of twice the inside diameter of the inlet line or a minimum of two inches above the flood level rim.**
4. **Aspirators and Ejectors – Shall have a PVB, depending upon the degree of hazard, on a faucet from which these devices are attached or operated. (SPC Sec. G104.6)**
5. **Automatic film processor shall be protected by an AG or an RPBA.**
6. **Bath Tub with Hose attachments – Shall have a PVB at faucet.**
7. **Bedpan Washer – Shall have a PVB installed in accordance with the Standard Plumbing Code (SPC Sec. G104.6.)**
8. **Boiler Connection – Potable water connection to boiler feed water system which contains conditioning chemicals shall either be made through an AG at make-up tank, or have an RPBA, or DCVA, depending upon the degree of hazard. Feed connections to steam and hot water heating boilers, heat exchangers, etc. which do not contain chemical additives shall have either an AG, DCVA. (SPC Sec. 1204.3.5.)**

- 9. Booster Pumps – All booster pumps shall be provided with a low-pressure cut-off unless other acceptable provisions are made to prevent the creation of low or negative pressures in the piping system (SPC Sec. 1211.6.)**
- 10. Colonic Irrigators or Douche Attachments – Shall have a PVB installed. (SPC Sec. G104.7)**
  
- 11. Dark Rooms (Photographic) – All threaded faucets shall be protected with a PVB or HBVB.**
  
- 12. Dishwashing Machine – Shall be connected with a PVB on both hot and cold water supply lines in accordance with the Standard Plumbing Code. (SPC Sec. 915, 1101.2, 1204.1)**
  
- 13. Dip Tanks and Vats – Potable water inlet shall have an AG separation twice the inside diameter of the inlet or a minimum of two inches above the floor level rim.**
  
- 14. Garbage Disposer – Potable water supply lines connected directly to garbage disposer shall be equipped with a PBV. (SPC Sec. 912.1)**
  
- 15. Drinking Fountains – Shall have an AG separation (SPC Sec. 913.2.)**
  
- 16. Fire Sprinkler Drains – Shall have an AG separation to the sewer.**
  
- 17. Flushing Floor Drains – Shall have a PVB installed. (SPC Sec. G104.6.)**
  
- 18. Flush Valve Water Closets, Urinals, and Bidets – Shall have a vacuum breaker installed in accordance with the Standard Plumbing Code. (SPC Sec. 1204.3.1.)**
  
- 19. Foot and Sitz Bath – Shall have an AG separation or a PVB installed. (SPC Sec. G104.7)**
  
- 20. Hydrotherapy Baths – Shall have a PVB installed at water connection. (SPC Sec. G104.7)**
  
- 21. Janitors, Mop or Slop Sink – With threaded hose faucet shall be equipped with an AVB before faucet.**
  
- 22. Lawn Sprinkler Systems – Shall have an RP installed.**
  
- 23. Pipette Washer – Shall have a PVB installed or AG separation installed on faucet.**
  
- 24. Private Wells – Shall not be interconnected or physically linked in any way, with or without a protective device, to the public potable water supply.**

- 25. Potable Water Make-Up Line – To chill water loops, heating loops, purge units, condensers, converters, and condensate tanks should be equipped with DCVA, or RPBA, depending upon degree of hazard.**
- 26. Serrated Faucets – Shall be equipped with a PVB at the faucet. If gooseneck faucet is used “laboratory faucet type vacuum breaker” is acceptable. (SPC G104.6.)**
- 27. Shampoo Basin Hose Rinse – Shall have an AVB installed**
- 28. Sinks and Bath top Faucets – Shall have an AG separation above flood level rim.**
- 29. Sterilizers – Shall have an AG separation or PVB installed.**
- 30. Stills – Shall have an AG separation**
- 31. Swimming Pool Fill Line – Shall have an AG separation above the flood level rim or an RP.**
- 32. Wash-Up Sinks with Threaded Faucets – Shall have a PVB or HBVB installed.**
- 33. Wash down Hose Faucet – Shall have a PVB or HVBV installed on faucet.**
- 34. Washing Machine Drain Lines – Shall have an AG separation to sewer (SPC Sec. 919.)**
- 35. Water Supply Inlets – In pits, tanks, trenches, tubs, vats, or any other place that could become flooded with contaminated liquids shall have an AG separation above the flood level rim.**
- 36. Water Operated Presses, Elevators, or other similar Pressure Producing Equipment – Shall have an RP installed.**
- 37. X-ray Developing Tank – Shall have an AG separation or a PVB.**

**Note: Any device, equipment, or situation not covered by this cross connection policy, which may constitute a potential health hazard, will be examined for appropriate treatment by Regional Utilities.**

## **SECTION 8 TESTING OF BACKFLOW PREVENTERS**

### **8.01 GENERAL REQUIREMENTS**

**As part of a complete cross-connection control program, it shall be the duty of the non-single family customer - user at any premises where reduced pressure backflow assemblies (RPBA), double check valve assemblies (DCVA), pressure vacuum breakers (PVB) or other backflow preventers are installed to have a thorough inspection and operational test at the time of installation and at least once a year, or more often in those instances where inspections indicate a need. Proper field test procedures with calibrated gage equipment must be used by certified personnel (reference page 12 for definition and explanation of a Backflow Prevention Device Tester – Certified). The cost of inspection, testing, maintenance and repair of backflow prevention assemblies at non-single family residences shall be borne by the non-single-family customer-user.**

**The single family customer-user shall be responsible for the cost of the initial installation, inspection, and testing of the backflow prevention assembly as well as the costs and scheduling of inspections and tests thereafter.**

**All devices failing to meet the latest performance standards set forth by the American Water Works Association (AWWA 506), American Society of Sanitary Engineers (ASSE 101.3), or the Foundation for Cross Connection Control at the University of Southern California (Manual of Cross Connection Control), shall be repaired and retested promptly.**

### **8.02 PARALLEL INSTALLATION**

**All backflow prevention assemblies are required to be tested with a minimum frequency of once per year.**

**Regional Utilities will not accept an unprotected bypass around a backflow preventer when the assembly is in need of testing, repair or replacement.**

### **8.03 PREPARATION**

**As a prelude to each of the field test procedures, it is essential that the certified tester follow some basic steps:**

- 1. Notify – Appointment and introduction procedures shall be followed similar to that used for inspections. The owner of the assembly shall be notified that water service will be shut off during test procedure. Special arrangements may have to be made so that interruption of service will not create a hardship on the user.**
- 2. Identify – Make sure that proper assembly is being tested by checking identification tag for make (manufacturer), model, and serial number. All information and test data shall be recorded on proper forms before leaving the location.**
- 3. Inspect- Inspect the assembly for the required components for the field test procedure, i.e., upstream and downstream shut-off valves, properly placed test cocks, etc.**
- 4. Observe – Carefully observe area around the assembly for telltale signs of leakage, i.e., moss or algae growth, plant life, or soil erosion. This should supply the tester with additional information regarding the condition of the assembly before the test is performed. Example: Wet spot under relief valve port of reduced pressure backflow assembly is an indication of relief valve activity, possibly from pressure fluctuations or fouling of the assembly. Proper testing will define the problem.**

### **8.04 RECORDS**

**The Cross-Connection Control Supervisor will notify the customer-user when tests are required and shall supply the necessary test forms. These forms will be completed and returned to the Cross-Connection Control Supervisor by the date indicated. A full report on the test of each assembly giving pertinent test data and indicating what, if any, repairs were made is to be delivered promptly to the Cross-Connection Control Supervisor.**

**Records are to include, but not be limited:**

- 1. Reports of inspections, recommendations, reinspections, and corrective action taken.**
- 2. Correspondence between the Cross-Connection Control Supervisor, customer, health agency, or Plumbing Official, etc., concerning correction action.**
- 3. A master list of all backflow protection assemblies in use or proposed for use in service area.**
- 4. Vital data on each protective assembly.**
- 5. Test and maintenance reports of each protective assembly.**
- 6. A file system to call to the attention of the Cross-Connection Control Supervisor when testing is due or when re-inspections of premises are needed.**

#### **8.05 TESTERS**

**To ensure continued satisfactory operation of a backflow prevention assemblies, testing shall be performed by individuals who are certified and understand the design and intended operation of the assembly (reference page 12 for definition and explanation of the Backflow Prevention Assembly Tester – Certified). A program to train individuals in the testing of backflow preventers is available regionally and nationally. Only certified assembly testers will be accepted by Regional Utilities for fulfillment of customer-user obligations regarding the testing of their backflow prevention assemblies.**

**Testers shall provide Regional Utilities with the completed test report which shall include the following information:**

- 1) Service address where device is located**
- 2) Account holder or facility name**
- 3) Description of device's location**
- 4) Size of device or assembly**
- 5) Type of device or assembly**
- 6) Manufacturer**
- 7) Model number**
- 8) Serial number**
- 9) Test Kit : Make, Model, Serial # and copy of calibration report**
- 10) A copy of the testers current certification**

**Any repairs, replacements, location change, or any other pertinent information shall also be noted.**

## **SECTION 9 RESULTS OF NON-COMPLIANCE**

### **9.01 DISCONTINUED SERVICE**

- 1. A consumer's health hazard surveillance report listing all cross connections found during inspection will be sent to the owner or authorized agent of the owner of the building or premises, stating that corrections should be made and setting a time for compliance. Unless otherwise noted in the report, the consumer shall have thirty (30) calendar days to comply and perform any required corrections. Upon failure of the owner or authorized agent of the owner of the building or premises to have the defect(s) corrected by the specified time, the Cross-Connection Control Supervisor shall cause the water service to the building or premises to be terminated and shall take such other precautionary measures deemed necessary to eliminate any danger of contamination of the public's potable water supply water system.**
- 2. The Cross-Connection Control Supervisor shall cause discontinuance of water service if a reduced pressure backflow prevention assembly has been by-passed or failed to be tested or properly maintained as required by Regional Utilities and/or policy statements contained in this manual. Upon discontinuance of service, the Operations Manager and General Manager shall be notified.**
- 3. The Cross-Connection Control Supervisor shall cause discontinuance of water service if an air-gap separation system is compromised or if, in the opinion of Regional Utilities, a hazardous condition cannot be immediately corrected.**
- 4. Upon discontinuance of water service for noncompliance with the provisions of this Manual, water service to such property shall not be restored until the system has been brought into full compliance, and a written order to reconnect has been issued by the General Manager.**

## 9.02

### VIOLATION LIABILITY

1. Any person or customer found guilty of violating any of the provisions of this Manual or any written order of Regional Utilities pursuant thereto, shall be punishable in accordance with local and state laws. In addition, such person or customer shall pay all costs and expenses involved in the case, including attorney's fees.
2. Notice of such violation shall be given by delivery of same to the premises and a copy thereof mailed to the billing address as it appears on Regional Utilities billing records.
3. Each day upon which a violation shall occur shall be deemed a separate and additional violation.
4. In addition to any penalty provided by law, Regional Utilities may file suit in the appropriate court to enjoin, restrain or otherwise prevent the violations of any of the provisions of this Chapter.

**SECTION 10  
FIRE SYSTEMS**

**10.01 GENERAL (Refer to Section 7 for Abbreviations of Backflow Prevention Assemblies)**

- 1. A DCDA or RPDA, depending upon the degree of hazard, shall be installed by the consumer on all unmetered fire systems.**
- 2. A DCDA or RPDA, depending upon the degree of hazard, shall be installed by the consumer on all metered fire systems.**
- 3. DCDA will be installed above ground to provide easier maintenance and meter accessibility.**
- 4. DCDA and RPDA assemblies shall be on private property abutting right-of-way. Regional Utilities shall be furnished an easement on this property.**
- 5. All DCDA and RPDA assemblies will be tested annually.**
- 6. The cost of testing and maintenance for DCDA and RPDA assemblies will be paid for by the consumer.**

**10.02 CLASSES OF FIRE SYSTEMS AND REQUIRED PROTECTION FOR EACH**

**Fire systems shall be divided into the following six (6) classes for the purpose of review. These classes are adopted in the AWWA No. M14 Backflow Prevention and Cross Connection Control Manual and as endorsed by the National Automatic Sprinkler and Fire Control Association.**

**Class I – Direct connections from public water mains only; no pumps, tanks, or reservoirs; no physical connection from other water supplies; no anti-freeze or other additives of any kind; all sprinkler drains discharging to atmosphere, dry wells, or other safe outlets.**

**Recommended Protection for Class 1: Double (DCDA) check valve with detector meter and alarm check valve.**

**Class 2 – Same as Class 1 except that booster pumps may be installed in the connections from the street mains (booster pumps do not affect the potability of the system; it is**

necessary, however, to avoid drafting so much water that pressure in the water main is reduced below 20 PSI).

**Recommended Protection for Class 2:** Same as Class 1.

**Class 3 – Direct connection from public water supply main plus one more of the following: elevated storage tanks; fire pumps taking suction from above ground covered reservoirs or tanks (all storage facilities are filled or connected to public water only, the water in the tanks to be maintained in a potable condition. Otherwise, Class 3 systems are the same as Class 1).**

**Recommended Protection for Class 3:** Same as Class 1.

**Class 4 – Directly supplied from public mains similar to Classes 1 and 2, with an auxiliary water supply on or available to the premises; or an auxiliary supply may be located within 1,700 feet of the pumper connection. (Note: The auxiliary supply would mean a pond, river, etc., dedicated to Fire Department use).**

**Recommended Protection for Class 4:** Systems will normally require maximum protection at the service connection. The type (Air Gap or RPDA) will generally depend on the quality of the auxiliary supply.

**Class 5 – Directly supplied from public mains and interconnected with auxiliary supplies, such as: pumps taking suction from reservoirs exposed to contamination or rivers and ponds; driven wells, mills, or other industrial water systems, or where antifreeze or other additives are used.**

**Recommended Protection for Class 5:** Air Gap or RPDA.

**Class 6 – Combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks.**

**Recommended Protection for Class 6:** System protection would depend on the requirements of both industry and fire protection, and could only be determined by a survey of the premises.

## **10.03 LOW PRESSURE CUT-OFFS**

**All fire pumps drawing suction from water mains shall be equipped with low pressure cut-off devices or other means to prevent the reduction of main pressure below given 20 PSI pressure as established by Regional Utilities. The fire system designer shall be required to furnish to the Fire Department and Regional Utilities calculations used to determine the pressure setting of the low-pressure cut-off switch.**

## **11.0 RECLAIMED WATER SYSTEMS**

**No cross connections between reclaimed water systems and potable water systems shall be allowed. All requirements of F.A.C. 62-610 and 62-555 concerning treatments and separation distances of potable and reclaimed water lines shall be met.**

**Any property served with reclaimed water shall have a RPBA installed on the properties potable water supply.**